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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,627	07/24/2001	Veera M. Boddu	6381/27397	5457

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EXAMINER	
MENON, KRISHNAN S	
ART UNIT	**PAPER NUMBER**
1723	10

DATE MAILED: 01/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/912,627	BODDU ET AL.	
	Examin r	Art Unit	
	Krishnan S Menon	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *13 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1--24* is/are pending in the application.

4a) Of the above claim(s) *1-7,20 and 22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-19,21,23 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *7* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

Claims 1-24 are pending in this application, of which claims 1-7, 20 and 22 are withdrawn from further consideration as being the non-elected claims.

Applicant's election with traverse of claims 8-19, 21, 23 and 24 in Paper No. 9 is acknowledged. The examiner would like to apologize for his improper use of the word 'allowable'. The product claims, at the time of restriction, had not been examined and therefore no determination as to the allowance had been made.

The process as claimed in group I can be made in a materially different manner such as having chitosan flakes as particles (ie, as compared to a gel) as a starting material, dissolving said flakes/particles, coating said substrate and permitting said substrate to dry, or by applying a binder to the substrate and the flakes adhering thereto.

The requirement is still deemed proper and is therefore made FINAL.

Priority

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional application upon which priority is claimed fails to provide adequate support under 35 U.S.C. 112 for claims 23 and 24 of this application. Applicant has claimed priority over a provisional application 60/222,180 dated 08/01/2000. Matter supporting the instant claims 23 and 24 was introduced in the preliminary amendment of 7/24/01 (same as the filing date of the application) which was not included in the provisional application. Matter included in the preliminary amendment that was not disclosed in the provisional application are the "new figure 6" with the caption "Photomicrograph of biosorbent of the instant invention utilizing perlite as a

support material", and "Perlite is also a support material for the practice of the instant invention" in the amended para 5, page 4.

Double Patenting

Claim 14 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 13. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 8,10-12, 15-19, 23 and 24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Lihme et al (US 5,935,442).

Lihme (442) teaches a biosorbent composition comprising a support material coated with chitosan for wastewater treatment (col 7 lines 19-55, col 7 line 56-col 8 line 27; col 12 lines 15-37; col 16 lines 8-67; example 1 col 27 lines 13-26) as in instant claim 8 and 19, a process as in instant claim 15, ceramic support material as in instant claim 10, 12, 17, (col 16 lines 8-30), dip coating as in instant claim 11 (example 1 col 27 lines 13-26), gel coating as in instant claim 16 (col 7 lines 55-65), and waste water treatment as in instant claim 18 (col 12 lines 15-37). The ceramic support material comprises perlite as in instant claim 23 and 24 (col 12 lines 30-35).

2. Claim 21 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Muzzarelli (US 3,635,818).

Muzzarelli (818) teaches a process for treating aqueous systems containing heavy metals with chitosan (example II)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muzzarelli (818) in view of Lihme (442).

Muzzarelli (818) teaches removal of heavy metals from water (see example II) using chitosan. However, Muzzarelli does not teach a carrier for the chitosan. Lihme teaches a support material like

perlite coated with chitosan for wastewater treatment (col 12 lines 15-37; col 16 lines 8-67). It would be obvious to one of ordinary skill in the art at the time of invention to use the Lihme (442) teachings to have a support material like perlite coated with chitosan for removal of heavy metals from the wastewater as taught by Muzzarelli (818). The support material also would help remove other pollutants from wastewater as taught by Lihme (col 12 lines 15-37).

4. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lihme (442) in view of Lyon et al (US 6,042,877).

Lihme (442) teaches all the elements of instant claim 13 and 14 except the spin coating. Lyon (877) teaches method of application of a chitosan-metal complex anti-microbial agent on substrates by spin coating (col 2 lines 25-35; col 4 lines 17-25). It would be obvious to one of ordinary skill in the art at the time of invention to use the spin coating method as taught by Lyon (877) in the teaching of Lihme (442) for obtaining complete coverage of the substrate.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gorovoj et al (US 6,402,953 B1) teaches use of chitosan as a wastewater treatment agent for removal of heavy metals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 703-305-5999. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Krishnan S. Menon
Patent Examiner
January 9, 2003

W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700